Dr. Bhawna Uttam
Assistant Professor,
Department of Chemistry,
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Education

Ph. D. Department of Chemistry, Indian Institute of Technology Bombay, India, July, **2015-2020**.
Thesis Title: **"*Synthesis, Characterization and Applications of conjugates of Calix[4]arene in solution and on the solid surfaces*"**
Supervisor: Prof. Chebrolu. P. Rao

M.Sc. **C**hemistry, Indian Institute of Technology Delhi, Delhi, India. First Class (CPI-8.78), 2013-2015.

B.Sc. Chemistry (Hons.) Miranda House, Delhi University, India. First Class (84.43%), 2010-2013.

Work Experience

Post-Doctoral Fellow at IIT Gandhinagar from December 2020 to April 2021, on **"*Nanoparticle Mediated Targeting of Mitochondria in cancer*"** with Prof. Sudipta Basu

Research Interest

Synthesis of supramolecular organic molecules and its hybrid materials

Nanomaterial development for drug delivery in cancer cells.

Conferences and Workshops

1. Presented a poster in "3rd Asian Conference on Chemosensors & Imaging" organized by GNDU, Amritsar during *6-9 November*, **2019** in Amritsar, Punjab.

2. Presented a poster in "*15th International Conference on Calixarenes*" held in Cassis (France) on June 10-14, **2019**.

3. Presented Poster in "*ACS on Campus event*" held in Indian Institute of Technology Bombay at Victor Menezes Convention Centre (VMCC), main auditorium on February 4, **2019**.

4. *Oral presentation* in "*In-House Symposium (IHS-2018)*" organized by Department of Chemistry IIT Bombay held on April. 7th, **2018**.

5. Presented a poster in "*Modren trends in Inorganic Chemistry, MTIC-XVII*" organized by CSIR-NCL, Pune and IISER Pune during *11-14 December*, **2017** in Pune.

6. Demonstrated *" Chemistry Experiments at Salters' Chemistry Camp"* Organised by the Royal Society of Chemistry held at Indian Institute of Technology Bombay during 05-07 December, **2017**.

7. Demonstrated "*Fun with Chemistry in TechConnect"* organized by IIT Bombay held on December 16 to18th, **2016**.

8. Demonstrated "*Chemistry experiments in OPEN HOUSE"* organized by Department of Chemistry, IIT DELHI held on April 19th, **2014**.

9. Attended the workshop "*Mimicking Nature: Using Plant and Animal Extracts for Chemical Reaction*" held under the aegis of DS Kothari Centre for research and innovation in science education and DBT star project at Miranda House, University of Delhi held on March 5, **2013**.

10. Participated in the international symposium on "*Green Chemistry and sustainable Development*" held in Miranda House, University of Delhi on 30-31 March **2012**.

Teaching Assistance

- Teaching Assistant, ***Undergraduate lab Courses*** (CH–117L), Indian Institute of Technology Bombay, India, 2016–2017 and 2017-2018.
- Teaching Assistant, ***Undergraduate tutorial Courses*** (CH–524), Indian Institute of Technology Bombay, India, 2016–2017.

Academic Honors

- Awarded *Senior Research Fellowship* sponsored by University Grants Commission (CSIR), India, **2017**.
- Awarded *Junior Research Fellowship* sponsored by University Grants Commission (CSIR), India, **2015**.
- Qualified *Graduate Aptitude Test in Engineering, GATE Chemistry,* **2015**.
- Qualified National Eligibility Test conducted by CSIR, Govt. of. India **2014**.
- Qualified National level exam for M.Sc. Entrance, IIT-JAM, 2013

Peer-reviewed Publications

Uttam, B.; Narkhede, N.; Jahan, I.; Sen, S.; Rao, C. P. Coumarin-Calix[4]arene Conjugate Anchored SiO_2 Nanoparticles as Ultra-sensor Material for Fe^{3+} to Work in water, in Serum and in Biological Cells. *ACS Omega,* **2020***,* 5, 21288-21299.

Polepalli S.; **Uttam, B**.; Rao, C. P. Protein – Inorganic Nano Hybrid Sheets of Pd Embedded BSA as Robust Catalyst in Water for Oxidase Mimic Activity and C-C Coupling Reactions, and as Sustainable Material for Micromolar Sensing of Dopamine. *Material Advances*, **2020,** 1, 2074-2083.

Narkhede, N.; **Uttam, B**.; Rao, C. P.* *Calixarene assisted Pd- Nanoparticles in organic transformation: Synthesis, Characterization and catalytic application in water for C-C couplingand for reduction of nitroaromatics and organic dyes*. *ACS Omega* **2019***, 4*, 4908-4917.

Uttam, B.; Kandi, R.; Hussain, M. A.; Rao, C. P.* *Fluorescent lower rim 1, 3-Dibenzooxadiazole conjugate of calix[4]arene in selective sensing of fluoride in solution and in biological cells using confocal microscopy*. *J. Org. Chem.* **2018**, *83*, 11850–11859.

Uttam, B.; Hussain, M. A.; Joshi, S.; Rao, C. P.* *Physicochemical and ion sensing properties of benzofurazan appended calix[4]arene in solution and on gold nanoparticles: Spectroscopy, Microscopy and DFT computations in support of the species of recognition*. *ACS Omega* **2018***, 3,* 16989-16999.

Narkhede, N.; **Uttam, B**.; Kandi, R.; Rao, C. P.* *Silica-Calix hybrid composite of allyl calix[4]arene covalently linked to MCM-41 nanoparticles for sustained release of Doxorubicin into cancer cells*. *ACS Omega* **2018,** *3*, 229-239.

Narkhede, N.; **Uttam, B**.; Rao, C. P.* *Inorganic-organic covalent hybrid of polyoxometalate-calixarene: Synthesis, Characterization and enzyme mimetic activity*. *Inorg. Chim. Acta* **2018**, 483, 337–342.

Uttam, B.; Chawla, H. M.; Pant, N.; Shahid, M.* *Proficient molecular receptor exhibiting "ON-OFF" excimer fluorescence with fluoride and mercury toxicants*. *J. Photoch. Photobio. A.* **2017**, *39*, 224-229.

Chawla, H. M.; Shahid, M., Arora, L. S.; **Uttam, B**. *Synthesis and evaluation of a tri- armed molecular receptor for recognition of mercury and cyanide toxicants*. *Supramolecular Chemistry* **2017**, 29, 111-119.

References

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Indian Institute of Technology Tirupati
Tirupati–517506, Chittoor District, A.P., India
Email: cprao@iittp.ac.in

Professor Anindya Dutta (Co-supervisor)
Head of Department of Chemistry
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